

WHAT IS CLAIMED IS:

1. A method of transmitting an INAP in IN, comprising the steps of:
generating an INAP message object indicating an INAP initial setting through
5 an INAP factory object;
obtaining an invoke ID and dialogue ID from a TCAP dialogue object, to set
them in the INAP message object;
issuing a component addition command, to add the INAP message object to a
TCAP message object; and
10 generating and executing different transmission TCAP events based on a
dialogue state, to send the INAP message and delete the object after sending the
message.
2. The method as claimed in claim 1, wherein the step of generating and
15 executing different transmission TCAP events based on the current TCAP dialogue state
to send and delete the INAP message object includes the steps of:
inheriting the INAP object from a TC component object, to make a TC
primitive object into TC beginning in a TCAP dialogue idle state;
obtaining information required for the TC beginning from an SCP relationship
20 object, to set the information in the TC primitive;
issuing a TC primitive addition command to add the TC primitive to the TCAP
message to which the TC component was added previously and to send it; and
giving a command of transferring to an initial state, to transfer the TCAP
dialogue object from the idle state into the initial state.

3. The method as claimed in claim 2, wherein the step of issuing a TC primitive addition command to add the TC primitive to the TCAP message to which the TC component was added previously and to send it includes the steps of:

5 processing the TC component into a format capable of being used in the TCAP or its lower network protocol;

loading the processed TC component in a message data region, which is going to be transmitted to TCAP, to send it to the TCAP; and

10 sending the TC component to the TCAP, and then transmitting the TC primitive of the TCAP message.

4. The method as claimed in claim 3, wherein the step of transmitting the TC primitive of the TCAP message includes the step of:

15 processing the TC primitive into a format capable of being used in the TCAP and its lower network protocol; and

loading the processed TC primitive in a message data region, which is going to be transmitted to TCAP, to send it to the TCAP.

5. A method of receiving an INAP in IN, comprising the steps of:

20 when a TC primitive is received from the TCAP, generating a new TC beginning object for processing the received TC primitive;

finding a corresponding SCP relationship object using a dialogue ID included in the received TC primitive;

adding the new TC beginning object to a TCAP message by using the SCP

relationship object;

in case where only the TC primitive is received without accompanying a TC component, executing the TC primitive to which the TC beginning object was added;
and

5 performing a corresponding call processing, and then deleting the SCP relationship object to finish a dialogue with the SCP.

6. The method as claimed in claim 5, wherein the step of generating the TC beginning object includes the step of generating the same TC primitive as the kind
10 of a received INAP message and decoding the received INAP message.

7. The method as claimed in claim 5, wherein the step of finding a corresponding SCP relationship object using a dialogue ID included in the received TC primitive includes the step of generating a new SCP relationship object through a TCAP
15 dialogue object when the dialogue ID was not found.

8. The method as claimed in claim 5, wherein the step of executing the TC primitive to which the TC beginning object was added includes the steps of:

in case only the TC primitive is received, executing the TC primitive;
20 in case where a TC component is received together with the TC primitive, processing the TC component while withholding the execution of the TC primitive; and carrying out the withheld TC primitive, and then executing the processed TC component.

9. The method as claimed in claim 8, wherein the step of processing the TC component includes the steps of:

in case where the TC component is received from the TCAP, analyzing an operation code loaded in a TC invoke object included in the received TC primitive;

5 generating a connection related INAP object when the operation code corresponds to an INAP connection related operation code;

executing the NAP object to find a corresponding SCP relationship object using a dialogue ID included in the received TC component;

commanding the SCP relationship object to add a TC component object, to add
10 the TC component object to the TCAP message; and
executing the TC component.

10. The method as claimed in claim 5, wherein the step of executing the TC primitive includes the steps of:

15 generating a TC primitive event indicating TC beginning, and changing the TCAP dialogue state corresponding to the idle state;

finding a corresponding SCP using address information of the TC beginning object, and then changing the TCAP dialogue state into a full duplex state;

when a TC component is included in the TCAP message, executing the TC
20 component; and

ending a TCAP dialogue object when the TCAP dialogue state is changed into an ending state, finishing a dialogue with the SCP.

11. The method as claimed in claim 8, wherein the step of executing the

TC primitive includes the steps of:

generating a TC primitive event indicating TC beginning, and changing the TCAP dialogue state corresponding to the idle state;

finding a corresponding SCP using address information of the TC beginning object, and then changing the TCAP dialogue state into the full duplex state;

when a TC component is included in the TCAP message, executing the TC component; and

ending the TCAP dialogue object when the TCAP dialogue state is changed into the ending state, finishing the dialogue with the SCP.

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12. The method as claimed in claim 8, the step of executing the TC component includes the steps of:

executing a component execution function, to inherit the TC component object and connection related INAP object;

15 reporting generation of a TC invoke event through a SCP relationship object;

returning the current call processing state to a TC invoke related INAP object for the reported event; and

performing a corresponding call processing according to the TC invoke event with respect to the current call processing state.

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13. The method as claimed in claim 5, wherein the step of ending the dialogue with the SCP includes the steps of:

calling dialogue ending function, to generate a call processing event indicating conclusion of SCP relationship;

reporting the generated SCP relationship ending event to a call processing object such that the current call processing state is returned; and

deleting the SCP relationship ending event, and then deleting the corresponding SCP relationship object to finish the dialogue with the SCP.

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14. A method of processing an INAP for communication between an SSP and TCAP, comprising the steps of:

the SSP generating a TC component to be sent to an SCP;

allocating an invoke ID and dialogue ID to the generated TC component;

10 generating a TC primitive corresponding to the state of the allocated dialogue;

sequentially encoding the generated TC component and TC primitive in formats suitable for the protocol, to send it to the TCAP through a TCAP interface block;

receiving an INAP message sent from the TCAP;

15 decoding the received INAP message based on its kind;

finding a corresponding SCP relationship object using the dialogue ID contained in the decoded INAP message;

when the TC primitive is included in the decoded INAP message, executing the TC primitive; and

20 upon execution of corresponding call processing, deleting the found SCP relationship object, to finish a dialogue with the SCP.

15. The method as claimed in claim 14, wherein the step of generating the TC primitive includes the steps of:

generating the TC primitive corresponding to TC beginning that indicates beginning of the dialogue when the state of the allocated dialogue corresponds to an idle state;

receiving a routing address required for the generated TC primitive from the
5 SCP relationship object and adding it to the TCAP message; and
changing the state of the allocated dialogue from the idle state to an initial state.

16. The method as claimed in claim 14, wherein the step of executing the TC primitive includes the steps of:

10 in case where the TC primitive is the TC beginning that indicates initiation of the dialogue, generating a TC primitive event representing the TC beginning, and changing the state (TCAP dialogue state) of the dialogue corresponding to the dialogue ID included in the decoded INAP message from the idle state to the initial state;

finding a corresponding SCP using address information of a TC beginning
15 object, and then changing the TCAP dialogue state from the initial state into a full duplex state; and

in case where the decoded INAP message contains a TC component, executing the TC component.

20 17. The method as claimed in claim 16, wherein the executing the TC component includes the steps of:

executing a command corresponding to the operation of the TC component, to carry out a corresponding call processing; and

upon execution of the TC component, changing the state (TCAP dialogue state)

of the dialogue corresponding to the dialogue ID contained in the decoded INAP message into an ending state and finishing the dialogue.